Claims

[c1] What is claimed is:

1.A camera with a focus retaining mechanism, comprising:

a base having a cylindrical lens barrel;

a focusing lens mounted within the lens barrel, the focusing lens is movable in a first or a second direction along an optical axis;

a retaining member horizontally and movably mounted on the base for setting the focusing lens in a predetermined position, wherein the retaining member comprises a ratchet side, a smooth side, a first end and a second end positioned on opposite ends of the ratchet side and the smooth side; and

a retaining hook movably mounted on the base, the retaining hook comprising a horizontal arm, which has a vertical end downwardly extending to hook the retaining member in a initial state, moving substantially over the retaining member horizontally;

wherein when the focusing lens moves in the first direction, the vertical end of the retaining hook contacts the first end of the retaining member and then slides along the ratchet side; when the focusing lens stops, the vertical end of the retaining hook hooks the ratchet side and thus setting the focusing lens; when the focusing lens moves to the second direction, the vertical end slides back along the smooth side to the initial state.

[c2] 2.The camera with a focus retaining mechanism according to claim 1, wherein the horizontal arm and the vertical end of the retaining hook are monolithically made from a flexible metallic wire.

[c3] 3.The camera with a focus retaining mechanism according to claim 1, further comprising:

a flexible component mounted on the base for flexibly holding the retaining member; and

a driving motor mounted on the base for urging the retaining member;

wherein when the driving motor urges the retaining member to move the focusing lens, the focusing lens moves in the first direction within the lens barrel and the vertical end of the retaining hook contacts the first end of the retaining member and then slides along the ratchet side; when the focusing lens

stops moving, the vertical end of the retaining hook hooks the ratchet side and thus setting the focusing lens; when the focusing lens continues to move in the first direction, the vertical end of the retaining hook separates from the ratchet side, passes the second end of the retaining member, and then attaches to the smooth side; thereafter when the focusing lens starts to move in the second direction, the vertical end slides back along the smooth side to the initial state.

[c4] 4.The camera with a focus retaining mechanism according to claim 3, further comprising:
a driving ring mounted atop the retaining member; and
a connecting ring movably mounted beneath the retaining member;
wherein the driving motor urges the retaining member through the driving ring and the connecting ring.

[c5] 5.The camera with a focus retaining mechanism according to claim 4, wherein the driving ring and the connecting ring are rotatably mounted in the periphery of the lens barrel.

[c6] 6.The camera with a focus retaining mechanism according to claim 1, wherein the retaining member is arch-wise shaped with an arc side on either its inner side or outer side, and wherein the ratchet side and the smooth side are located on the arc sides.

[c7] 7.The camera with a focus retaining mechanism according to claim 6, wherein the retaining member is rotatably mounted on the lens barrel of the base.

[c8] 8.The camera with a focus retaining mechanism according to claim 1, wherein the smooth side is a sidewall of a guide groove which allows the passing of the vertical end of the retaining hook from the second end to the first end of the retaining member along the smooth side.

[c9] 9.A lens retaining device capable of positioning a focusing lens, comprising:
a base having a cylindrical lens barrel vertically formed at center part of the base for accommodating the focusing lens;
a retaining member rotatably mounted on periphery of the lens barrel for controlling the position of the focusing lens in the lens barrel, the retaining

member comprising a ratchet side;

a first driving device for urging the retaining member to rotate in a first direction;

a second driving device for providing a urging force for the retaining member to rotate in a second direction, wherein the first direction is a reverse direction of the second direction; and

a retaining hook for positioning and engaging with the retaining member when the retaining member rotates to a predetermined position in the first direction so as to resist the urging force provided by the second driving device that makes the retaining member rotate in the second direction.

[c10] 10.The lens retaining device according to claim 9, wherein the ratchet side is arch-wise shaped and has a plurality of ratchets thereof, and wherein the plurality of ratchets provide a plurality of positioning status for the focusing lens.

[c11] 11.The lens retaining device according to claim 9, wherein the retaining member comprises:

a horizontal arm with one end fixed on the base; and

a vertical end extending from the other end of the horizontal arm for engaging with ratchet side of the retaining member.

[c12] 12.The lens retaining device according to claim 10, wherein the retaining member has a arch-wise shaped section, and the ratchet side is disposed on one side of the arch-wise shaped section, and wherein the ratchet side comprises a first end and a second end.

[c13] 13.The lens retaining device according to claim 11, wherein when the retaining member rotates in the first direction, the vertical end of the retaining hook slides along the ratchet side from the first end to the second end; while the focusing lens stops, the vertical end of the retaining hook hooks the ratchet side and thus setting the focusing lens.

[c14] 14.The lens retaining device according to claim 12, wherein the a smooth side is disposed on the other side of the arch-wise shaped section, and when the

vertical end of the retaining hook slides along the ratchet side passing the second end, the vertical end slides to the smooth side and the second driving device urges the retaining member to rotate in the second direction

15.The lens retaining device according to claim 9, wherein the second driving device is a flexible component.